REMARKS

Amendments to the Claims

The present amendment is submitted in an earnest effort to advance the case to issue without delay.

Claim 19 and 28 have been amended without prejudice to recite preferred embodiments of applicants invention that are more clearly enabled and whose subject matter is more clearly distinguished from the prior art. Support is provided on page 19 and 20, Example 1 part G and Example 3.

Claim 26 is hereby cancelled as the subject matter has been incorporated in claim 19.

Claim 27 has been amended to change its dependence from claim 26 to claim 19.

Claims Rejection – 35 USC § 112

Claim 11-16, 19-24 were rejected under 35 USC §112 first paragraph as lacking enablement. Claim 19 has been amended without prejudice to recite a statins producing *Monascus* Fungus. Applicants' submit that the amended claims are fully enabled by the specification, including the examples, and respectfully request that the 112 first paragraph rejection be reconsidered and withdrawn.

As a point of clarification, the Office asserted that *Monascus* is a species of fungus. Applicants respectfully point out that *Monascus* is actually a genus of fungus and have attached a Wikopedia citation to *Monascus* as support.

Claim 27 was rejected under 35 USC §112 second paragraph as being indefinite. The Office asserted that a Hue "a" value "*less than 0*" is indefinite. Applicants traverse this rejection.

Applicants utilize the L,a*,b* color system to characterize the color of their fermentation products (Page 23, line 19 to page 24, lines 5). In this system a* is a vector in color space that quantifies the proportion of green vs red (more precisely magenta) color components (wavelengths) exhibited by the color of a particular specimen. As the attached articles indicate (HunterLab "Application notes diagram page 1, and Wikipedia "Lab color space, page 2 CIE L* a* b*) positive values of a* are perceived as increasingly red-magenta colored while negative a* values are perceived as increasingly green. Thus, an "a* value less than 0" has a definite and well established scientific meaning and is readily measured with a colorimeter (See example 1 pages 24-26). Simply put, an a* value less than zero means an absence of red-magenta wavelengths in the observed color of the sample.

In light of the above remarks, applicants respectfully request that the 112 second paragraph rejection of claim 27 be reconsidered and withdrawn.

Claim Rejections - 35 USC § 102

Claims 11-16, 19-21, 23-24 and 26 were rejected under 35 USC §102(b) as being anticipated by Japan patent JP-01277454 (JP-'454). Applicants traverse this rejection.

Applicants' invention is distinguished from JP '454 in the following key respects:

- Claim 19 is directed to food products selected from margarine, salad dressing, sweets, cereal bars (as defined on page 14, these bars are not protein bars), breakfast cereal and beverages. In contrast, JP '454 is directed to seasoned protein foods that incorporate fermented soybean curd (*Funyu* or fermented *Tofu*) and makes no disclosure of the types of food products recited in applicants' claims.

- Applicants' invention is directed to the recited food products that include beneficial ingredients (from a health standpoint) that are derived from the fermentation of soybeans or soy derived ingredients by certain statin producing fungi. The recited food products include an extract of the soybean fermentation product that contains these ingredients which are not proteins. In contrast, the entire focus of JP '454 is to make protein foods that have a more long lasting flavor during chewing or that taste better when cold. JP '454 is directed to the incorporation of a fermented bean cured food (i.e., *funyo* which is fermented bean curd – protein) that is combined with other proteins and optional ingredients and cooked by extrusion in the hydrous state (PTO translation page 4 -3rd paragraph). JP '454 does not disclose the use of an

ethanol or vegetable oil extract of fermented soy proteins or whole or crushed soybean.

- The *monascus* fungi recited by applicants must be capable of producing statins as well as an extract of low Hue a* (a* < 20 - low degree of redness). In contrast JP '454 does not disclose the specific *monascus* species used nor does it disclose any criticality regarding the ability of the fungus or fermentation process to generate statins or to generate low red color. The Office asserted that since JP '454 used the same fungus and substrate, the fermentation product must contain the same polyyphenols, statins and color as applicants' fermentation product. Applicants' respectfully point out, as discussed above, that *monascus* is a genus of fungus that contains over 20 species. Applicants have shown in example 1 that soybeans fermented with *monascus ruber* produces a soy bean fermentation product having the desired level of statins/soy ingredients and a low color extract while *monascus purpureus* (widely used in China) yields highly red colored extracts with a* values >> 20 (see comparative example A page 26).

  As applicants have discussed in a previous response, fermentation is a chemical reaction. The products formed depend upon the reaction conditions, the reagents employed and the specific type of micro-organism used. Applicants' focus was to produce soy fermentation products providing high levels of beneficial statins and soy ingredients (non-proteins such as polyphenols) without darkly red colored by-products. In contrast, the entire focus of JP '454 is to produce fermented protein products that taste good. The reference does not disclose any criticalities directed to the production of fermentation products giving high levels of non-proteins in general and

beneficial statins and soy ingredients in particular while minimizing darkly red colored by-products.

Absent disclosure of the types of food products recited by applicants, that these food products include an ethanol or edible oil extract of a soy fermentation product specifically made with a statins producing monascus fungus that provides a low level of red color as measured by its Hue a* value, JP '454 can not anticipate applicants claims.

Neither does the reference render the claims obvious. JP '454 is concerned with protein food products that have better/longer lasting taste by incorporating fermented soybean curd which is a protein. The goal, the ingredients and the type of food products are quite distinct from applicants' goal (beneficial ingredients to health), ingredients (statins and soy ingredients which are not proteins) and food products (margarine, salad dressing, sweets, cereal bars, breakfast cereal and beverages). Absent a disclosure of the types of food products recited by applicants, that the food products should include an ethanol or edible oil extract of a soy fermentation product specifically made with a statins producing *monascus* fungus that provides a low level of red color as measured by its Hue a* value, JP '454 does not present a *prima facie* case of obviousness.

Claims 11-16, 21, 22 and 24 are even further removed from JP '454 since this reference dose not disclose any of the subject matter recited in these claims.

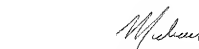
In light of the above amendments and remarks applicants respectfully request that the 102(b) rejection of claims 11-16, 19-21, 23-24 and 26 over Japan patent JP-01277454 be reconsidered and withdrawn.

Claims 11-16 and 19-25 were rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatenable over claims 1-8 of US Patent No 6,849,281. Applicants herewith provide a Terminal Disclaimer over the aforementioned patent. The Terminal Disclaimer is believed to obviate this rejection.

In view of the foregoing amendment, comments and Terminal Disclaimer, applicant requests the Examiner to reconsider the rejections and now allow the claims.

If a telephone conversation would be of assistance in advancing prosecution of the subject application, applicants' undersigned agent invites the Examiner to telephone him at the number provided.

Respectfully submitted,



Michael P. Aronson
Registration No. 50,372
Agent for Applicants

Tel. No. 201-894-2412 or 845-708-0188

Monascus

From Wikipedia, the free encyclopedia

Monascus is a genus of mold. Among the 24 known species of this genus, the red-pigmented *Monascus purpureus* is among the most important because of its use in the production of certain fermented foods in East Asia, particularly China and Japan.

Monascus	
Scientific classification	
Kingdom:	Fungi
Division:	Ascomycota
Class:	Eurotiomycetes
Order:	Eurotiales
Family:	Elaphomycetaceae
Genus:	***Monascus*** Tiegh., 1884

Species

- *Monascus albidulus*
- *Monascus argentinensis*
- *Monascus aurantiacus*
- *Monascus barkeri*
- *Monascus bisporus*
- *Monascus eremophilus*
- *Monascus floridanus*
- *Monascus fuliginosus*
- *Monascus fumeus*
- *Monascus kaoliang*
- *Monascus lunisporas*
- *Monascus mucoroides*
- *Monascus olei*
- *Monascus pallens*
- *Monascus paxii*
- *Monascus pilosus*
- *Monascus pubigerus*
- *Monascus purpureus*
- *Monascus ruber*
- *Monascus rubropunctatus*
- *Monascus rutilus*
- *Monascus sanguineus*
- *Monascus serorubescens*
- *Monascus vitreus*

External links

- Index Fungorum page (http://www.indexfungorum.org/Names/genusrecord.asp?RecordID=3247)
- Index Fungorum species list (http://www.indexfungorum.org/Names/names.asp?strGenus=Monascus)
- National Center for Biotechnology Information page (http://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?mode=Info&id=5097&lvl=3&lin=f&keep=1&srchmode=1&unlock) (for Family name)

This fungus-related article is a stub. You can help Wikipedia by expanding it (http://en.wikipedia.org/w/index.php?title=Monascus&action=edit).

APPLICATIONS NOTE

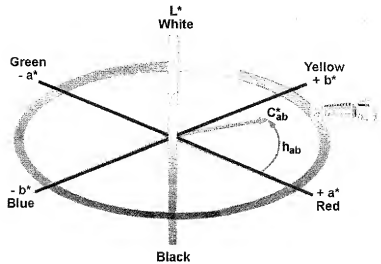
HunterLab

Insight on Color September 1-15, 1996, Vol. 8, No. 11

CIE L*C*h Color Scale

Background

The CIE L*C*h or CIELCh color scale is an approximately uniform scale with a polar color space. The CIELCh scale values are calculated from the CIELAB scale values. They are described in Section 4.2 of CIE Publication 15.2 (1986). The L*, lightness, value is the same in each scale. The C* value, chroma, and the h value, hue angle, are calculated from the a* and b* of the CIELAB scale. The CIELCh color space is diagrammed below.



The basic delta values for this scale are ΔL^*, ΔC^*, and ΔH^*. They are the differences between the sample and standard in L*, C*, and h*. The total color difference, ΔE^* is the same as the ΔE^* in the CIELAB scale.

Another total color difference value often used with this color scale is ΔE_{cmc}. ΔE_{cmc} and associated values will be discussed in a separate Applications Note. Please refer to it for further information.

Conditions for Measurement

Instrumental: Any HunterLab color measurement instrument

Illuminant: Any

Standard Observer Function: 2 or 10 degree

Transmission and/or Reflectance: Either.

Formulas

If X/X_n, Y/Y_n, and Z/Z_n are all greater than 0.008856, then use the following equation for L*:

$$L^* = 116 \sqrt[3]{\frac{Y}{Y_n}} - 16$$

If any of X/X_n, Y/Y_n, or Z/Z_n is equal to or less than 0.008856, then use this equation for L*:

$$L^* = 903.3 \left(\frac{Y}{Y_n}\right)$$

where

X, Y, and Z are the CIE Tristimulus Values.

X_n, Y_n, and Z_n are the tristimulus values for the illuminant.

Y_n is 100.00.

X_n and Z_n are listed in the tables below.

CIE 2 Degree Standard Observer

Illuminant	X_n	Z_n
A	109.83	35.55
C	98.04	118.11
D_{65}	95.02	108.82
F2	98.09	67.53
TL 4	101.40	65.90
UL 3000	107.99	33.91
D_{50}	96.38	82.45
D_{60}	95.23	100.86
D_{75}	94.96	122.53

CIE 10 Degree Standard Observer

Illuminant	X_n	Z_n
A	111.16	35.19
C	97.30	116.14
D_{65}	94.83	107.38
F2	102.13	69.37
TL 4	103.82	66.90
UL 3000	111.12	35.21
D_{50}	96.72	81.45
D_{60}	95.21	99.60
D_{75}	94.45	120.70

$$C^* = \sqrt{a^{*2} + b^{*2}}$$

$$h = \arctan \frac{b^*}{a^*}$$

where

If X/X_n, Y/Y_n, and Z/Z_n are all greater than 0.008856, then use:

$$a^* = 500\left(\sqrt[3]{\frac{X}{X_n}} - \sqrt[3]{\frac{Y}{Y_n}}\right)$$

$$b^* = 200\left(\sqrt[3]{\frac{Y}{Y_n}} - \sqrt[3]{\frac{Z}{Z_n}}\right)$$

If any of X/X_n, Y/Y_n, or Z/Z_n is equal to or less than 0.008856, then use:

$$a^* = 500\left[f\left(\frac{X}{X_n}\right) - f\left(\frac{Y}{Y_n}\right)\right]$$

$$b^* = 200\left[f\left(\frac{Y}{Y_n}\right) - f\left(\frac{Z}{Z_n}\right)\right]$$

where

$$f\left(\frac{X}{X_n}\right) = \sqrt[3]{\frac{X}{X_n}} \qquad \text{when } X/X_n > 0.008856$$

$$f\left(\frac{X}{X_n}\right) = 7.87\left(\frac{X}{X_n}\right) + \frac{16}{116} \qquad \text{when } X/X_n < 0.008856$$

$$f\left(\frac{Y}{Y_n}\right) = \sqrt[3]{\frac{Y}{Y_n}} \qquad \text{when } Y/Y_n > 0.008856$$

$$f\left(\frac{Y}{Y_n}\right) = 7.87\left(\frac{Y}{Y_n}\right) + \frac{16}{116} \qquad \text{when } Y/Y_n < 0.008856$$

$$f\left(\frac{Z}{Z_n}\right) = \sqrt[3]{\frac{Z}{Z_n}} \qquad \text{when } Z/Z_n > 0.008856$$

$$f\left(\frac{Z}{Z_n}\right) = 7.87\left(\frac{Z}{Z_n}\right) + \frac{16}{116} \qquad \text{when } Z/Z_n < 0.008856$$

$$\Delta L^* = L^*_{sample} - L^*_{standard}$$

$$\Delta C^* = C^*_{sample} - C^*_{standard}$$

$$\Delta H^* = \sqrt{\Delta E^{*2} - \Delta L^{*2} - \Delta C^{*2}}$$ if $h^\circ_{SMP} > h^\circ_{STD}$, then ΔH^* is regarded as positive.

if $h^{\circ}_{SMP} < h^{\circ}_{STD}$, then ΔH^* is regarded as negative.

$$\Delta E^* = \sqrt{\Delta L^{*2} + \Delta a^{*2} + \Delta b^{*2}}$$

Typical Applications

This color scale may be used for measurement of the color of any object whose color can be measured.

For Additional Information Contact:

Technical Services Department
Hunter Associates Laboratory, Inc.
11491 Sunset Hills Road
Reston, Virginia 20190
Telephone: 703-471-6870
FAX: 703-471-4237

Lab color space

From Wikipedia, the free encyclopedia

Lab is the abbreviated name of two different color spaces. The best known is **CIELAB** (strictly **CIE 1976 L*a*b***) and the other is **Hunter Lab** (strictly, **Hunter L, a, b**). *Lab* is an informal abbreviation, and without further checking should not be assumed to be one or the other. The color spaces are related in intention and purpose, but are different.

Both spaces are derived from the "master" space CIE 1931 XYZ color space. However, CIELAB is calculated using cube roots, and Hunter Lab is calculated using square roots.[1] Except where data must be compared with existing Hunter L,a,b values, it is recommended that CIELAB be used for new applications.[1]

The intention of both spaces is to produce a color space that is more perceptually linear than other color spaces. *Perceptually linear* means that a change of the same amount in a color value should produce a change of about the same visual importance. When storing colors in limited precision values, this can improve the reproduction of tones. Both Lab spaces are relative to the whitepoint of the XYZ data they were converted from. Lab values do not define absolute colors unless the whitepoint is also specified. In practice, many times the whitepoint is assumed to follow a standard and not explicitly stated (ie: all ICC Lab values are relative to CIE standard illuminant D50).

Contents

Advantages of Lab

Compared to RGB and CMYK, it is often quicker to make efficient color corrections in Lab. The fact that lightness is completely disregarded in the A and B channels make these much less sensitive to errors.

Even though the number of possible numerical values for each pixel is smaller in Lab than for RGB and CMYK, it is possible to reference a much larger number of colors altogether in Lab - not only colors that

cannot be described with RGB and CMYK, but also sometimes colors that do not appear at all in the real world. In some cases this access to imaginary colors is useful when one goes between several steps in the manipulation of a picture.

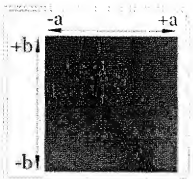
It would be natural to assume that one loses information converting a picture between Lab and other color spaces. However, according to tests by Dan Margulis, the loss is completely negligible. [2]

Which Lab?

Some specific uses of the abbreviation in software, literature etc.

- In Adobe Photoshop, image editing using "Lab" is CIELAB D50.
- In ICC Profiles, the Lab color space used as a profile connection space is CIELAB D50.
- In TIFF files, the Lab color space is CIELAB.
- In PDF documents, the Lab color space is CIELAB.

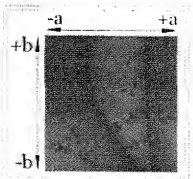
CIE 1976 L*, a*, b* Color Space (CIELAB)



Lightness 25%

CIE L*a*b* (CIELAB) is the most complete color model used conventionally to describe all the colors visible to the human eye. It was developed for this specific purpose by the International Commission on Illumination (*Commission Internationale d'Eclairage*, hence its *CIE* initialism). *The * after L, a and b are part of the full name, since they represent L*, a* and b*, derived from L, a and b.* CIELAB is an Adams Chromatic Value Space.

The three parameters in the model represent the lightness of the color (**L***, L*=0 yields black and L*=100 indicates white), its position between magenta and green (**a***, negative values indicate green while positive values indicate magenta) and its position between yellow and blue (**b***, negative values indicate blue and positive values indicate yellow).



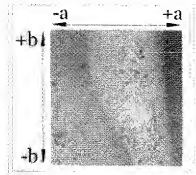
Lightness 50%

The Lab color model has been created to serve as a device independent model to be used as a reference. Therefore it is crucial to realize that the visual representations of the full gamut of colors in this model are never accurate. They are there just to help in understanding the concept, but they are inherently inaccurate.

Since the Lab model is a three dimensional model, it can only be represented properly in a three dimensional space.

CIE 1976 L*a*b* is based directly on the CIE 1931 XYZ color space as an attempt to linearize the perceptibility of color differences, using the color difference metric described by the MacAdam ellipse. The non-linear relations for L*, a*, and b* are intended to mimic the logarithmic response of the eye. Coloring information is referred to the color of the white point of the system, subscript n.

RGB and CMYK conversions



Lightness 75%

Programmers and others often seek a formula for conversion between RGB or CMYK values and L*a*b*, not understanding that RGB and CMYK are not absolute color spaces and so have no precise relation to L*a*b*. To convert between RGB and L*a*b*, for example, it is necessary to determine or assume an absolute color space for the RGB data, such as sRGB or Adobe RGB. For each of these absolute spaces, there are standard techniques for converting to and from the XYZ absolute color space (see for example SRGB color space#Specification of the transformation) which can be combined with the following transformations to convert them to L*a*b*.

XYZ to CIE L*a*b* (CIELAB) and CIELAB to XYZ conversions

The forward transformation

$$L^* = 116\,f(Y/Y_n) - 16$$
$$a^* = 500\left[f(X/X_n) - f(Y/Y_n)\right]$$
$$b^* = 200\left[f(Y/Y_n) - f(Z/Z_n)\right]$$

where

$$f(t) = t^{1/3} \text{ for } t > 0.008856$$
$$f(t) = 7.787\,t + 16/116 \text{ otherwise}$$

Here X_n, Y_n and Z_n are the CIE XYZ tristimulus values of the reference white point.

The division of the f(t) function into two domains was done to prevent an infinite slope at t=0. f(t) was assumed to be linear below some $t=t_0$, and was assumed to match the $t^{1/3}$ part of the function at t_0 in both value and slope. In other words:

$$t_0^{1/3} = at_0 + b \text{ (match in value)}$$
$$1/(3t_0^{2/3}) = a \text{ (match in slope)}$$

The value of b was chosen to be 16/116. The above two equations can be solved for a and t_0:

$$a = 1/(3\delta^2) = 7.787037\cdots$$
$$t_0 = \delta^3 = 0.008856\cdots$$

where $\delta = 6 / 29$. Note that $16 / 116 = 2\delta / 3$

The reverse transformation

The reverse transformation is as follows (with δ = 6 / 29 as mentioned above):

1. define $f_y \stackrel{\text{def}}{=} (L^* + 16)/116$
2. define $f_x \stackrel{\text{def}}{=} f_y + a^*/500$
3. define $f_z \stackrel{\text{def}}{=} f_y - b^*/200$
4. if $f_y > \delta$ then $Y = Y_n f_y^3$ else $Y = (f_y - 16/116)3\delta^2 Y_n$
5. if $f_x > \delta$ then $X = X_n f_x^3$ else $X = (f_x - 16/116)3\delta^2 X_n$
6. if $f_z > \delta$ then $Z = Z_n f_z^3$ else $Z = (f_z - 16/116)3\delta^2 Z_n$

XYZ to CIELUV & CIELUV to XYZ conversions

The forward transformation

CIE 1976 L*u*v* (CIELUV) is based directly on CIE XYZ and is another attempt to define an encoding with uniformity in the perceptibility of color differences. The non-linear relations for L*, u*, and v* are given below:

$$L^* = 116(Y/Y_n)^{1/3} - 16$$
$$u^* = 13L^*(u' - u_n')$$
$$v^* = 13L^*(v' - v_n')$$

The quantities u_n' and v_n' refer to the reference white point or the light source. (For example, for the 2° observer and illuminant C, u_n' = 0.2009, v_n' = 0.4610.) Equations for u' and v' are given below:

$$u' = 4X/(X + 15Y + 3Z) = 4x/(-2x + 12y + 3)$$
$$v' = 9Y/(X + 15Y + 3Z) = 9y/(-2x + 12y + 3).$$

The reverse transformation

The transformation from (u',v') to (x,y) is:

$$x = 27u'/(18u' - 48v' + 36)$$
$$y = 12v'/(18u' - 48v' + 36).$$

The transformation from CIELUV to XYZ is performed as following:

$$u' = u^*/(13L^*) + u_n$$
$$v' = v^*/(13L^*) + v_n$$
$$Y = Y_n((L^* + 16)/116)^3$$
$$X = -9Yu'/((u' - 4)v' - u'v')$$
$$Z = (9Y - 15v'Y - v'X)/3v'$$

Hunter Lab Color Space

L is a correlate of Lightness, and is computed from the Y tristimulus value using Priest's Approximation to Munsell Value:

$$L = 100\sqrt{Y/Y_n}$$

where Yn is the Y tristimulus value of a specified white object. For surface-color applications, the specified white object is usually (though not always) a hypothetical material with unit reflectance and which follows Lambert's law.. The result will be Ls scaled between 0 (black) and 100 (white); roughly 10 times Munsell value. Note, however, that a mid-range Lightness of 50 is produced not by a Y of 50, but rather of 25.

a and **b** are termed opponent color axes. a represents, roughly, Redness (positive) versus Greenness (negative), and is computed:

$$a = K_a \left(\frac{X/X_n - Y/Y_n}{\sqrt{Y/Y_n}} \right)$$

where K_a is a coefficient which depends upon the illuminant (for D65, Ka is 172.30; see approximate formula below) and Xn is the X tristimulus value of the specified white object.

The other opponent color axis, **b**, is positive for yellow colors and negative for blue colors. It is computed as:

$$b = K_b \left(\frac{Y/Yn - Z/Zn}{\sqrt{Y/Yn}} \right)$$

where K_b is a coefficient which depends upon the illuminant (for D65, K_b is 67.20; see approximate formula below) and Zn is the Z tristimulus value of the specified white object.[3]

Both a and b will be zero for objects which have the same chromaticity coordinates as the specified white objects. Usually this is the case for neutrals.

Approximate Formulas for Ka and Kb

In the previous version of the Hunter Lab color space, K_a was 175 and K_b was 70. Apparently, Hunter Associates Lab discovered that better agreement could be obtained with other color difference metrics, such as CIELAB (see below) by allowing these coefficients to depend upon the illuminants. Approximate formulae are:

$$K_a \approx \frac{175}{198.04}(X_n + Y_n)$$

$$K_b \approx \frac{70}{218.11}(Y_n + Z_n)$$

which result in the original values for Illuminant C, the original illuminant with which the Lab color space was used.

The Hunter Lab Color Space as an Adams Chromatic Valance Space

Adams Chromatic Valance spaces are based on two elements: a (relatively) uniform lightness scale, and a (relatively) uniform chromaticity diagram.[4] If we take as the uniform lightness scale Priest's approximation to the Munsell Value scale, which would be written in modern notation:

$$L = 100\sqrt{Y/Yn}$$

and, as the uniform chromaticity coordinates:

$$c_a = \frac{X/Xn}{Y/Yn} - 1 = \frac{X/Xn - Y/Yn}{Y/Yn}$$

$$c_b = k_e\left(1 - \frac{Z/Zn}{Y/Yn}\right) = k_e\frac{Y/Yn - Z/Zn}{Y/Yn}$$

where k_e is a tuning coefficient, we obtain the two chromatic axes:

$$a = K \cdot L \cdot c_a = K \cdot 100\sqrt{Y/Yn}\frac{X/Xn - Y/Yn}{Y/Yn} = K \cdot 100\frac{X/Xn - Y/Yn}{\sqrt{Y/Yn}}$$

and

$$b = K \cdot L \cdot c_b = K \cdot k_e \cdot 100\sqrt{Y/Yn}\frac{Y/Yn - Z/Zn}{Y/Yn} = K \cdot k_e \cdot 100\frac{Y/Yn - Z/Zn}{\sqrt{Y/Yn}}$$

which is identical to the Hunter Lab formulae given above if we select $K = K_a / 100$ and $k_e = K_b / K_a$. Therefore, the Hunter Lab color space is an Adams Chromatic Valance space.

References

1. ^ *a b* Hunter L,a,b Versus CIE 1976 L*a*b* (http://www.hunterlab.com/appnotes/an02_01.pdf) (PDF)
2. ^ Dan Margulis. *Photoshop Lab Color: The Canyon Conundrum and Other Adventures in the Most Powerful Colorspace, ISBN 0321356780.*
3. ^ Hunter Labs (1996). "Hunter Lab Color Scale". *Insight on Color* **8** 9 (August 1-15, 1996). Reston, VA, USA: Hunter Associates Laboratories.
4. ^ Adams, E. Q. (1942). "X-Z planes in the 1931 I.C.I. system of colorimetry". *JOSA* **32** 3: 168-

173.

Retrieved from "http://en.wikipedia.org/wiki/Lab_color_space"

Category: Color space